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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/821,800

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Gregory T. Edwards

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EXAMINER

SETH, MANAV

ART UNIT

PAPER NUMBER

2624

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/821,800	Applicant(s) EDWARDS ET AL.	
	Examiner MANAV SETH	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 10, 2010 has been entered.

Response to Amendment

2. Applicant's amendment filed on March 10, 2010 has been considered and entered in full.
3. Applicant's amendment to the claims have been considered and entered in full. Based on the applicant's amendment to the claims, claim rejections under 35 USC 112 have been withdrawn.
4. Applicant's arguments with respect to the claims have been considered but are not persuasive.

Response to Arguments

5. Applicant's arguments regarding the prior art under Hatfield and Newman on pages 10-12 of the amendment filed on March 10, 2010 have been fully considered but are not persuasive. Applicant argues in substance that:

“Hatfield discloses a user interface that utilizes both eye gaze data and voice recognition data. This allows a single user to interact with a computer system. Newman is cited to teach a system

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that can be responsive to multiple users. However, Hatfield is used to teach cursor control based on user eye movement. A cursor cannot be controlled by multiple user's eye movements because each user would move their eyes differently rendering the cursor useless. Newman is similarly directed to response to eye input from a single user. Specifically, Newman is directed to a wearable computer. See Figure 1. As with Hatfield, input from multiple users would render the device of Newman useless. The Office Action states that the references show input from one or more users. However, there is no citation to that teaching on either reference. Thus, Applicants submit that both references teach away from use of eye tracking data from multiple users as explicitly recited in the claims. Therefore, no combination of references can teach or suggest or suggest the invention as recited in the claims".

Examiner respectfully disagrees. Examiner provided a note for the applicant which said "Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings for the art and are applied to the specific limitations within the individual claim, other passages and figures may be applied as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references entirely as potential teachings all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner" and applicant has completely ignored the note in preparing the response. Examiner has clearly cited the subject matter from Newman on page 7 of the office action mailed on 11/10/2009 which discloses the teachings of use of a host computer by one or more users. Examiner here again cites the following from Newman:

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Newman discloses a handsfree system in which the user may operate the computing apparatus to display information in a **hands-free manner utilizing eye tracking with or without audio commands** (col. 2, lines 61-64). Newman further discloses “the system concept of eye-tracking permits the operator to manipulate the computer completely hands-free by tracking the eye and interpreting its movements as “mouse” commands to the application. Generally, the eye tracking system is head-mounted on the user but may be used in any suitable manner” (col. 3, lines 40-45). Newman further discloses “a voice command can be given to the present computer which is confirmed or enhanced by the present eye-tracking system and vice-versa” (col. 3, lines 42-45).

Newman further discloses **“The remote computer can be in contact with several users concurrently each having activation means, headset with display means, and communication means to interact with the host computer. Therefore, in this second mode, it is possible, for example, to permit several users with headsets to function off one portable mobile host computer carried by one of several users either working together or at remote locations”** (col. 6, lines 16-24). Clearly, each user has its own display and activation means, which let them operate individually and simultaneously. Newman further discloses “the **system can work in two modes: In the first mode**, a user having a headset with activation means, display screen and communication means is linked with a host computer either worn on the user’s person contained within the display means or remote from the person. The user would command the host computer to display a particular procedure for repairing a piece of equipment. The host computer would then search for an transmit the procedure back to the user for display on the user’s headset. **In the second mode, a host computer could also be responsive to several users having headsets that may be working as a team to repair the piece of equipment. The users could all work**

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from the same procedure or call for a different procedure to be displayed as an additional window in the display’ (col. 7, lines 1-15).

Further adding, on analysis of applicant’s arguments it seems applicant is arguing simultaneous use of the system by multiple users, which the claims does not even claim. However, the subject matter of simultaneous use of the system by multiple users has been taught by Newman. Therefore, Office still maintains the rejections on the respective claims.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO “Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility” (Official Gazette notice of 22 November 2005 <<http://www.uspto.gov/web/offices/com/sol/og/2005/week47/og200547.htm>>), Annex IV, reads as follows:

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

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Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in Sec. 101.

... a signal does not fall within one of the four statutory classes of Sec. 101.

... signal claims are ineligible for patent protection because they do not fall within any of the four statutory classes of Sec. 101.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 23 February 2010 <<http://www.uspto.gov/web/offices/com/sol/og/2010/week08/TOC.htm#ref20>>), reads as follows:

"The USPTO recognizes that applicants may have claims directed to computer readable media that cover signals per se, which the USPTO must reject under 35 U.S.C. § 101 as covering both non-statutory subject matter and statutory subject matter. In an effort to assist the patent community in overcoming a rejection or potential rejection under 35 U.S.C. § 101 in this situation, the USPTO suggests the following approach. A claim drawn to such a computer readable medium that covers both transitory and non-transitory embodiments may be amended to narrow the claim to cover only statutory embodiments to avoid a rejection under 35 U.S.C. § 101 by adding the limitation "non-transitory" to the claim. Cf. *Animals - Patentability*, 1077 Off. Gaz. Pat. Office 24 (April 21, 1987) (suggesting that applicants add the limitation "non-human" to a claim covering a multi-cellular organism to avoid a rejection under 35 U.S.C. § 101). Such an amendment would typically not raise the issue of new matter, even when the specification is silent because the broadest reasonable interpretation relies on the ordinary and customary meaning that includes signals per se. The limited situations in which such an amendment could raise issues of new matter occur, for example, when the specification does not support a non-transitory embodiment because a signal per se is the only viable embodiment such that the amended claim is impermissibly broadened beyond the supporting disclosure. See, e.g., *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998)."

7. Claims 9-16 and 20-22 are rejected under 35 U.S.C. 101 because:

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Claims 9-16 and 20-22 are drawn towards a computer-readable medium having a computer program or instructions embodied thereon. Such computer executable programs are functional descriptive material that can constitute statutory products when properly claimed in combination with a computer readable storage device that allows the functionality of the program to be realized. However, while the claim defines the program in combination with a “computer usable medium,” the claim language is not limited to the use of statutory storage media in combination with the program. Specifically, the disclosure defines the computer accessible/readable medium as including read only memory (ROM); random access memory (RAM); magnetic disk storage media; optical storage media; flash memory devices; electrical, optical, acoustical or other form of propagated signals (e.g., carrier waves, infrared signals, digital signals) (paragraph 0020 on page 9 of the specification). While the read only memory (ROM); random access memory (RAM); magnetic disk storage media; optical storage media; flash memory devices (statutory media) are physical storage devices, but the carrier wave/infrared signal/digital signal is a signal which is intangible energy, and therefore is not considered to be a statutory product. While the claim does read on at least some statutory embodiments (such as the floppy or hard or magnetic or optically readable disks), it also encompasses the combination of the program with the carrier wave, which is not a statutory product. Since the claimed invention encompasses non-statutory embodiments, the claim is directed towards non-statutory subject matter.

Claims 9-16 and 20-22 as a whole define a carrier wave, and “[a] transitory, propagating signal ...is not a “process, machine, manufacture, or composition of matter.” Those four categories define the explicit scope and reach of scope and reach of subject matter patentable under 35 U.S.C § 101; thus, such a signal cannot be patentable subject matter.” (*In re Petrus A.C.M. Nuttjen; fed Cir, 2006-1371, 9/20/2007*).

In an effort to assist the patent community in overcoming a rejection or potential rejection under 35 U.S.C. § 101 in this situation, the USPTO suggests the following approach. A claim drawn

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to such a computer readable medium that covers both transitory and non-transitory embodiments may be amended to narrow the claim to cover only statutory embodiments to avoid a rejection under 35 U.S.C. § 101 by adding the limitation "non-transitory" to the claim.). Such an amendment would typically not raise the issue of new matter, even when the specification is silent because the broadest reasonable interpretation relies on the ordinary and customary meaning that includes signals per se. The limited situations in which such an amendment could raise issues of new matter occur, for example, when the specification does not support a non-transitory embodiment because a signal per se is the only viable embodiment such that the amended claim is impermissibly broadened beyond the supporting disclosure. See, e.g., *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473 (Fed. Cir. 1998)."

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-2, 4-5, 7-10, 12-13 and 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatfield et al., November 30, 1997, "An Interface integrating eye gaze and voice recognition for hands-free computer access" (pages 1-7), further in view of Newman et al., U.S. Patent No. 5,844,824.

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Hatfield discloses an EVA (Eye/Voice Aware) interface which allows combined eye-tracking and voice input to allow hands-free interaction with a standard window-based computer application, where voice input being the external context data.

Hatfield discloses "In EVA, we implemented a mode of operation where the user can slave the screen cursor to his/her eye. Wherever the user looks on the display while operating in this mode, the cursor will be displayed...The user **fixates** a Windows button..... The system will detect rapid eye movement, e.g., saccades and adjust very quickly to gross changes in POG "(Hatfield, topic 4 – Initial EVA Implementation, pages 4 and 5). Clearly from Hatfield's disclosure, it is clear that the cursor is a slave of the eye, and the cursor motion is defined by the eye movement (or eye tracking data) and it being apparent that in order to interpret the eye motion (or eye tracking data), an eye interpretation engine (or system or component) is inherently required which would send the translated data to the system to synchronize the cursor with the eye motion (or eye behavior), without which EVA system won't be able to synchronize the eye with cursor. The interpretation component is a must part of a system which uses eye motion or eye behavior to control a system. Thus, EVA system, **receiving from an eye interpretation engine, at least an interpretation of eye tracking data corresponding to at least one user.**

Hatfield further discloses **receiving external context data corresponding the at least one user's interaction with an application** (Topic 4 – Initial EVA Implementation- pages 4 and 5 – external context data being voice commands such as “forward tab”, “click”, “page up” and “page down” – With IE users can navigate the various hyperlinks in a web page by “tabbing between them” with the command “forward tab”. They can also fixate a particular hyperlink and utter “click”, page 4 –last few lines). Now, as in Microsoft Windows, the operations of the computing device running the application are controlled by the use of cursor and the buttons, and controlling

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the system is basically controlling the operational state of the processor of the computing device. Hatfield discloses that voice input is used as command entry for controlling the operational states of the processor of the computer running the application. For example, voice commands such as “forward tab, “page up” and “page down” would control the operational state of browsing of internet explorer in the device (pages 4, last few lines through page 5), which conforms to the limitation “wherein the external context data is related to an operational state associated with a computing device running the application”.

Hatfield further discloses “based, at least in part, on the interpretation of the eye tracking data and the external context data, dynamically modifying a characteristic of a graphical user interface of the application” (Topic 4 - Initial EVA Implementation – page 4. last few lines through page 5 – in internet explorer, fixate a particular hyperlink and utter “click” which has the effect of clicking with a mouse on the hyperlink, thus hyperlink being the characteristic of the application (internet explorer) and dynamically acting on the characteristic being clicking on the hyperlink to invoke the internet explorer to display the contents of the link on the browser and after clicking, it opens a new link in the browser which being dynamically modifying a characteristic of a graphical user interface of the application).

As discussed before, Hatfield discloses an EVA (Eye/Voice Aware) interface which allows combined eye-tracking and voice input to allow hands-free interaction with a standard window-based computer application, where voice input being the external context data. Hatfield provides an example of an application in which the combination of eyetracking and voice commands is used by a single user of the computer but does not expressly teach the usage of the combination of eyetracking and voice by a plurality of users.

However, Newman discloses a hands free system in which the user may operate the computing apparatus to display information in a hands-free manner utilizing eye tracking with or without audio commands (col. 2, lines 61-64). Newman further discloses “the system concept of eye-tracking permits the operator to manipulate the computer completely hands-free by tracking the eye and interpreting its movements as “mouse” commands to the application. Generally, the eye tracking system is head-mounted on the user but may be used in any suitable manner” (col. 3, lines 40-45). Newman further discloses “a voice command can be given to the present computer which is confirmed or enhanced by the present eye-tracking system and vice-versa” (col. 3, lines 42-45). Newman further discloses **“The remote computer can be in contact with several users concurrently each having activation means, headset with display means, and communication means to interact with the host computer. Therefore, in this second mode, it is possible, for example, to permit several users with headsets to function off one portable mobile host computer carried by one of several users either working together or at remote locations”** (col. 6, lines 16-24). Clearly, each user has its own display and activation means. Newman further discloses “the **system can work in two modes: In the first mode**, a user having a headset with activation means, display screen and communication means is linked with a host computer either worn on the user’s person contained within the display means or remote from the person. The user would command the host computer to display a particular procedure for repairing a piece of equipment. The host computer would then search for and transmit the procedure back to the user for display on the user’s headset. **In the second mode, a host computer could also be responsive to several users having headsets that may be working as a team to repair the piece of equipment. The users could all work from the same procedure or call for a different procedure to be displayed as an additional window in the display”** (col. 7, lines 1-15).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time invention was made to combine the teachings of Newman of extending the combination of eye tracking and voice data to multiple-users to control/operate the computer with that of Hatfield. One of ordinary skill in the art would have been motivated to combine the teachings of Newman with that of Hatfield because both references are directed to the same field of endeavor and Newman's teachings when combined with the teachings of Hatfield would enhance or provide the Hatfield's invention with additional capability or versatility of handling applications where multiple users concurrently use the computer to share the same application when working on the same task (especially when different users are accessing a host computer from their individual activation and display means), and would further increase the efficiency of the group or users working on the task.

Regarding claim 2, claim 2 recites wherein acting on comprises one of: modifying, creating, destroying, removing, invoking and configuring. Hatfield discloses "in internet explorer, fixate a particular hyperlink and utter "click" which has the effect of clicking with a mouse on the hyperlink", (Topic 4 - Initial EVA Implementation – page 4. last few lines through page 5), thus hyperlink being the characteristic of the application (internet explorer) and dynamically acting on the characteristic being clicking on the hyperlink to **invoke** the internet explorer to display the contents of the link on the browser.

Regarding claim 4, all the limitations in the claim 4 are similar to claim 1 except that claim 4 recites "dynamically acting on a graphical output of the application displayed on an output device based, at least in part, on the interpretation of the eye tracking data and the external context data". As discussed before, Hatfield discloses (Topic 4 - Initial EVA Implementation – page 4. last few

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lines through page 5 – in internet explorer, fixate a particular hyperlink and utter “click” which has the effect of clicking with a mouse on the hyperlink) thus hyperlink being the characteristic of the application (internet explorer) and dynamically acting on the characteristic being clicking on the hyperlink to invoke the internet explorer to display the contents of the link on the browser. Thus clicking on the hyperlink would invoke the internet explorer to display the contents of the link as output on the browser, where the output again being a page in the internet explorer with hyperlink. Hatfield further discloses acting on the output (page 5, topic 4, 1st few lines - Users can also scroll the browser by issuing "page up" and "page down" commands, open list boxes and select various items).

Claim 5 has been similarly analyzed and rejected as per claim 2.

Claims 7-10, 12-13 and 15-16 have been similarly analyzed and rejected as per claims 1-2 and 4-5.

Regarding claims 17-22, Hatfield discloses the external sources (external context data) comprise one or more of: system information, location and/or z-order of windows and/or objects, document Object Model (DOM) of a Web page or application being viewed, current application process state and/or visual state, task models, cognitive models describing the mental or physical steps or states required (page 4 - last few lines - **current application process state and/or visual state** – tabbing between the hyperlinks which being the process/visual state of browsing, the tasks model including tabbing and scrolling, fixating and clicking a windows button).

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10. Claims 3, 6, 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatfield et al., November 30, 1997, "An Interface integrating eye gaze and voice recognition for hands-free computer access" (pages 1-7), further in view of Newman et al., U.S. Patent No. 5,844,824, and further in view of Martins, U.S. Patent No. 6,608,615 B1.

Regarding claims 3, 6, 11 and 14, as discussed in the rejection of claims 1 and 4, the combined invention of Hatfield and Newman discloses that eye tracking data can be used to control various aspects of the interface for example controlling the browsing in internet explorer (IE) and selecting the various items in IE but combined invention of Hatfield and Newman does not explicitly disclose the extended applications where the eye tracking data would be used such as "determining from the interpretation of the eye tracking data at least a portion of an interface that has not been viewed by the user and modifying a format of the portion of the interface that has not been viewed by the user". However, Martins which belong to the same field of endeavor describes the extended applications where the eye tracking data can be used. Martins discloses "if the banner add is not viewed at all, the intervention would cause the banner to dynamically appear to jump closer to the user's gaze" (Martins, col. 6, lines 19-21). Therefore, it would have been obvious for one of ordinary skill in the art at the time of invention was made to combine the teachings of Martins with that of combined invention of Hatfield and Newman. One of ordinary skill in the art would have been motivated to combine the teachings of Martins with that of combined invention of Hatfield and Newman as it would enhance the capabilities of combined invention of Hatfield and Newman to be used in extended applications, thus making Hatfield's system more versatile in the field of controlling the interface application using eye tracking data.

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Examiner note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings for the art and are applied to the specific limitations within the individual claim, other passages and figures may be applied as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references entirely as potential teachings all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manav Seth whose telephone number is (571) 272-7456. The examiner can normally be reached on Monday to Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali, can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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/Manav Seth/

Primary Examiner, Art Unit 2624

March 25, 2010